

1.                   A device for placement in an oral cavity during a dental restoration, the device comprising:
  - a body member having a pair of spaced apart ends;
  - a pair of tines extending downwardly from the respective ends, the tines
  - 5   each having an outer surface;
  - a pair of wedge elements integral with the respective tines and extending inwardly therefrom toward one another, each wedge element being capable of being wedged between adjacent teeth; and
  - a pair of cushion elements each having an outer surface and an inner
  - 10   surface positioned about and engageable with the respective tines between the wedge elements and the spaced apart ends, the outer surfaces of the cushion elements capable of adapting and retaining a matrix band located between two adjacent teeth to a tooth contour of one of said teeth during a restoration procedure.
2.                   The device of claim 1 further comprising a pair of grooves formed in a top surface of the respective ends and extending downwardly into the tines, the grooves opening inwardly at the outer surfaces of the tines in opposition to one another and in substantial alignment with the wedge elements and adapted to receive a pair of tines of a
- 5   tensioning instrument.
3.                   The device of claim 2 wherein the grooves are U-shaped or V-shaped.
4.                   The device of claim 1 wherein the cushion elements comprise a microporous plastic.

5.               The device of claim 4 wherein the microporous plastic is selected from the group consisting of: high density polyethylene, polytetrafluoroethylene, ultra-high molecular weight polyethylene, nylon-6, polypropylene, polyvinylidene fluoride and polyethersulfone.
6.               The device of claim 4 wherein the microporous plastic comprises a foamed polyurethane elastomer.
7.               The device of claim 4 wherein the microporous plastic is capable of fluid absorption in the oral cavity.
8.               The device of claim 1 wherein the cushion elements comprise a silicone elastomer or a thermoplastic elastomer.
9.               The device of claim 1 wherein the cushion elements are removable and replaceable.
10.              The device of claim 1 wherein the outer surfaces of the tines are generally cylindrical, and wherein each of the cushion elements is generally ring-shaped.
11.              The device of claim 10 wherein each of the wedge elements has a length from the outer surface of the respective tine inwardly to a tip portion of the wedge element, and a portion of each of the ring-shaped cushion elements extends over a respective wedge element such that the outer surface is positioned about one-third to  
5   about two-thirds the length of the respective wedge element.

12.           The device of claim 1 wherein the outer surface of each tine includes a positioning groove and wherein the inner surface of each cushion element includes a positioning hub configured to be received in the respective positioning groove.
13.           The device of claim 12 wherein each groove is positioned at the outer surface of each tine opposite the wedge elements.
14.           The device of claim 1 wherein the outer surfaces of the cushion elements include a wedge-shaped portion extending at least partially over the respective wedge elements.
15.           The device of claim 14 wherein each of the wedge elements has a length from the outer surface of the respective tine inwardly to a tip portion of the wedge element, and wherein the wedge-shaped portions extend about one-third to about two-thirds the length of the respective wedge element.
16.           The device of claim 1 wherein the body member is flexible whereby the spaced apart ends are moveable with respect to each other.
17.           The device of claim 16 wherein the body member is generally ring-shaped.

18.           A system for use during a dental restoration, the system comprising:  
                  at least one flexible matrix band insertable between adjacent teeth with  
first second ends extending outwardly;  
                  a matrix retention device comprising:  
5                   a body member having a pair of spaced apart ends,  
                  a pair of tines extending downwardly from the respective ends,  
the tines each having an outer surface,  
                  a pair of wedge elements integral with the respective tines and  
extending inwardly therefrom toward one another, each wedge element being capable of  
10   being wedged between the adjacent teeth; and  
                  at least one pair of cushion elements having an outer surface and in inner  
surface positionable about and engageable with the respective tines between the wedge  
elements and the spaced apart ends, the cushion elements capable of pressing the first  
and second ends of the matrix band around one of the adjacent teeth and retaining the  
15   matrix band in that pressed position during a restoration procedure.
19.           The system of claim 18 wherein the matrix retention device further  
comprises a pair of grooves formed in a top surface of the respective ends and extending  
downwardly into the tines, the grooves opening inwardly at the outer surfaces of the  
tines in opposition to one another and in substantial alignment with the wedge elements  
5   and adapted to receive a pair of tines of a tensioning instrument.

20. The system of claim 19 further comprising a tensioning instrument having a pair of tines capable of being received in the respective grooves and capable of pushing the spaced apart ends further apart for insertion of the wedge elements between the adjacent teeth.
21. The system of claim 20 wherein the grooves are U-shaped or V-shaped.
22. The system of claim 18 wherein the cushion elements comprise a microporous plastic.
23. The system of claim 22 wherein the microporous plastic is selected from the group consisting of: high density polyethylene, polytetrafluoroethylene, ultra-high molecular weight polyethylene, nylon-6, polypropylene, polyvinylidene fluoride and polyethersulfone.
24. The system of claim 22 wherein the microporous plastic comprises a foamed polyurethane elastomer.
25. The system of claim 22 wherein the microporous plastic is capable of fluid absorption in the oral cavity.
26. The system of claim 18 wherein the cushion elements comprise a silicone elastomer or a thermoplastic elastomer.

27. The system of claim 18 wherein the cushion elements are removable and replaceable.
28. The system of claim 27 wherein the at least on pair of cushion elements comprises a plurality of pairs.
29. The system of claim 18 wherein the outer surfaces of the tines are generally cylindrical, and wherein each of the cushion elements is generally ring-shaped.
30. The system of claim 29 wherein each of the wedge elements has a length from the outer surface of the respective tine inwardly to a tip portion of the wedge element, and a portion of each of the ring-shaped cushion elements extends over a respective wedge element such that the outer surface is positioned about one-third to  
5 about two-thirds the length of the respective wedge element.
31. The system of claim 18 wherein the outer surface of each tine includes a positioning groove and wherein the inner surface of each cushion element includes a positioning hub configured to be received in the respective positioning groove.
32. The system of claim 31 wherein each groove is positioned at the outer surface of each tine opposite the wedge elements.
33. The system of claim 18 wherein the outer surfaces of the cushion elements include a wedge-shaped portion extending at least partially over the respective wedge elements.

34. The system of claim 33 wherein each of the wedge elements has a length from the outer surface of the respective tine inwardly to a tip portion of the wedge element, and wherein the wedge-shaped portions extend about one-third to about two-thirds the length of the respective wedge element.

35. The system of claim 18 wherein the body member is flexible whereby the spaced apart ends are moveable with respect to each other.

36. The system of claim 35 wherein the body member is generally ring-shaped.

37. A method of preparing a tooth to be restored in an oral cavity, the tooth having a buccal surface, a labial surface, and a proximal surface, the method comprising:

5 providing a device comprising a flexible body member having a pair of spaced apart ends in a first spaced position, a pair of tines extending downwardly from the respective ends and having an outer surface, a pair of wedge elements integral with the respective tines and extending inwardly therefrom toward one another, a pair of grooves formed in a top surface of the respective ends and extending downwardly into the tines, the grooves opening inwardly at the outer surfaces of the tines in opposition to  
10 one another and in substantial alignment with the wedge elements, and a pair of cushion elements having an outer surface and an inner surface positioned about and engageable with the respective tines between the wedge elements and the spaced apart ends;

placing a matrix band in an interproximal space between the proximal surface of the tooth to be restored and an adjacent tooth, wherein a first and a second  
15 end of the matrix band extend outwardly from the interproximal space in the facial and lingual directions, respectively;

inserting a pair of tines of a tensioning instrument in the respective grooves of the device and manipulating the tensioning instrument to push the spaced apart ends of the device further apart to a second spaced position greater than the first  
20 spaced position;

while the spaced apart ends are in the second spaced position, placing the device in the oral cavity with the tines extending downwardly adjacent respective opposing sides of the interproximal space;

releasing the tensioning instrument to bring the spaced apart ends toward  
25 the first spaced position thereby inserting the wedge elements into the interproximal



space between the matrix band and the adjacent tooth to press the matrix band to the proximal surface, and thereby pressing the outer surfaces of the cushion elements against the respective first and second ends of the matrix band to adapt the first and second ends of the matrix band toward the facial and lingual surfaces, respectively, of the tooth to be restored.

38. The method of claim 37 wherein providing the device includes providing cushion elements that comprise a microporous plastic capable of absorbing fluids around the tooth to be restored when the device is placed in the oral cavity with the spaced apart ends being toward the first spaced position.